

Amendment to the Claims

This listing of Claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Currently Amended) A substrate adapted for selective micron and nanometer scale deposition, the substrate having;

a support;

a conductive layer on the support;

a dielectric layer of a material which will hold an electrostatic charge, the dielectric layer disposed on the conductive layer; and

a chemically functional layer on the dielectric layer, the chemical functional layer providing a protective layer for the dielectric layer and a chemically reactive surface for compounds deposited on the surface;

whereby electrostatic charge patterns may be formed in a predetermined manner upon or in the substrate.

2. (Original) A substrate as in Claim 1 wherein the support is selected from the group comprising a metal, glass, ceramic, or polymeric material and the support is clear or opaque and flexible or rigid.

3. (Original) A substrate as in Claim 1 wherein the conductive layer is combined with the support.

4. (Original) A substrate as in Claim 1 wherein the conductive layer is a very thin

layer and is transparent.

5. (Original) A substrate as in Claim 1 wherein the conductive layer conductive layer is vacuum-deposited onto the support.

6. (Original) A substrate as in Claim 1 wherein the conductive layer is selected from the group comprising a sputtered layer of metal or indium tin oxide, or a carbon nano-tube layer.

7. (Previously Presented) A substrate as in Claim 1 wherein the dielectric layer is selected from the group comprising a glass, a polymeric resin and a methylmethacrylate (MMA).

8. (Original) A substrate as in Claim 1 wherein the dielectric layer is a photoconductor.

9. (Original) A substrate as in Claim 8 wherein the photoconductor is selected from the group comprising zinc oxide, cadmium sulphide, lead sulphide, lead selenide, amorphous selenium, doped selenium, alloys of selenium including selenium- tellurium, selenium-arsenic, organic photoconductive materials including polyvinylcarbazole (PVK) and complexes of polyvinylcarbazole sensitised with trinitrofluorenone.

10. (Previously Presented) A substrate as in Claim 1 wherein the chemically functional layer is a material selected from the group comprising a silane polymer, silicon dioxide, silicon nitride (Si_xN_y), titanium dioxide, TyzorTM, cross-linked or partially cross-

linked epoxy novolac resins, polymerised oligomers, cross-linked resins, functionalised parylene (a polymer of di-para-xylyene), acrylates and methacrylates which may include functional groups, multi-functional acrylates and methacrylates, monomers which have been crosslinked with a photoinitiator.

11. (Currently Amended) A substrate having;

a support;

a conductive layer on the support;

a photoconductive layer of a material which is adapted to have an electrostatic charge thereon selectively dissipated upon receiving incident radiation, the photoconductive layer disposed on the conductive layer; and

a chemically functional layer on the photoconductive layer, the chemical functional layer providing a protective layer for the photoconductive layer and a chemically reactive surface for compounds deposited on the surface;

whereby electrostatic charge patterns may be formed in a selected array upon the substrate to influence the movement of charged droplets in a liquid medium on the substrate.

12. (Currently Amended) A substrate adapted for manufacture of DNA arrays, the substrate having;

a support;

a conductive layer on the support;

a photoconductive layer of a material which is adapted to have an electrostatic charge thereon dissipated upon receiving incident radiation, the photoconductive layer disposed on the conductive layer; and

a chemically functional layer on the photoconductive layer, the chemical functional layer providing a protective layer for the photoconductive layer;

whereby electrostatic charge patterns may be formed in a selected array upon the substrate to influence the movement of charged droplets in a liquid medium on the substrate;

the chemically functional layer comprising at least in part a chemically active material to which a binder molecule can be attached, whereby a selected electric charge pattern may be generated upon the substrate by incident radiation to enable selective chemical de-protection of the binder molecules or DNA oligomers already joined to a binder molecule and application of nucleotides to selected binder molecules or to DNA oligomers already joined to a binder molecule.

13. (Currently Amended) A substrate adapted for manufacture of DNA arrays, the substrate having;

a support;

a conductive layer on the support;

a photoconductive layer of a material which is adapted to have an electrostatic charge thereon selectively dissipated upon receiving incident radiation, the photoconductive layer disposed on the conductive layer; and

a chemically functional layer on the photoconductive layer, the chemical functional layer providing a protective layer for the photoconductive layer;

whereby electric charge patterns may be formed in a selected array upon the substrate to influence the movement of charged droplets in a medium on the substrate; the chemically functional layer providing a surface to which a binder molecule can be attached.